

A Ctenostomatous Ectoproct Epizoic on the Chiton

Ischnochiton mertensii

BY

EUGENE S. HELFMAN

Department of Zoology, University of California, Berkeley, California 94720

(2 Text figures)

DURING THE SUMMER of 1966 I collected 167 chitons of 18 species; collections were made both intertidally and subtidally in the region of Bodega Bay, Sonoma County, California. On three individuals of one species, *Ischnochiton mertensii* (MIDDENDORFF, 1846), stoloniferous ectoprocts of the species *Farella elongata* (VAN BENEDEEN, 1845) were found attached to the ventral surface of the girdle, while all other chitons observed were free from any similar attachment. A review of the available literature has not revealed any descriptions of an ectoproct-amphineuran relationship of the nature discussed here.

OSBURN, 1963, described the habitat of *Farella elongata* as intertidal, where the species is said to form a dense, mat-like network of colonies on the substrate. O'DONOGHUE & O'DONOGHUE, 1923, found it on *Pinnixa* species, but failed to give any details. As found on *Ischnochiton mertensii*, the ectoproct colony consists of several 1.0 mm zoecia arising from one or a few elongated stolons. A stolon with its branching polypides may extend half the length of a 4.0 cm long chiton, giving off other stolons at various places along the girdle (Figure 1). The organ of attachment is the stolon, the polypides being free from the substrate.

The sites of attachment of the ectoprocts varied on the three chitons affected. The longest stolons and greatest number of polypides were found in the slight depression of the ventral girdle tissue bordering the pallial groove (Figure 2). Branches of these stolons and some individual polypides were located on the flat portion of the ventral girdle, while isolated polypides were found along the edge of the girdle on two of the three chitons. The approximate number of ectoprocts on each chiton was 100, 62, and 20. No individuals of *Farella elongata* were found on the dorsal surface of the chitons, nor were any other ectoprocts found on the ventral surfaces.

Several of the polypides that bordered the pallial cavity projected their tentacles into the chiton's incurrent groove

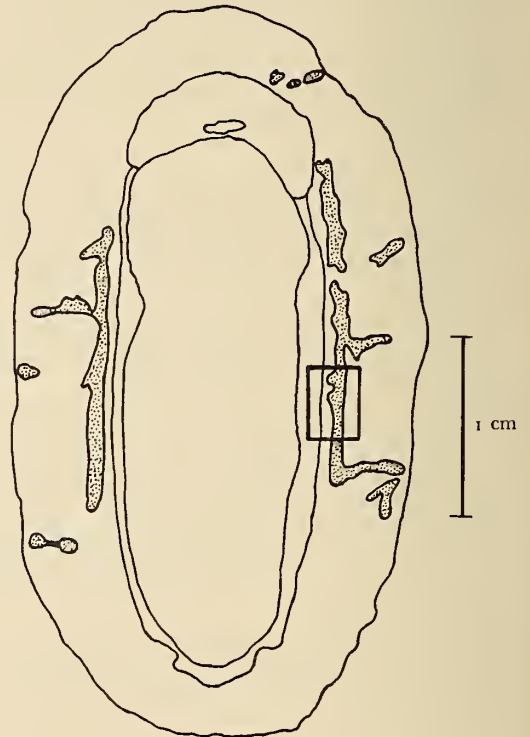


Figure 1

Ventral aspect of *Ischnochiton mertensii* (MIDDENDORFF, 1846). Stippled areas show the general configuration of approximately 100 attached ectoprocts of the species *Farella elongata* (VAN BENEDEEN, 1845). From a photograph of the live animals $\times 3$

and contacted the ctenidial leaflets. These ectoprocts filtered out and ingested particles flowing in the current of the mantle cavity. The tentacles in contact with the ctenidial leaflets projected outward from the ectoproct's

aperture like a cone, with cilia on the inward-directed surfaces of the 14 tentacles. The distal tips of the tentacles touched the ctenidial leaflets, and particles were seen to pass ventrally along the cilia of the leaflet, onto the ciliated inner surface of the tentacles and toward the mouth of the ectoproct, at which time the tentacles would be quickly retracted and the particles ingested or rejected.

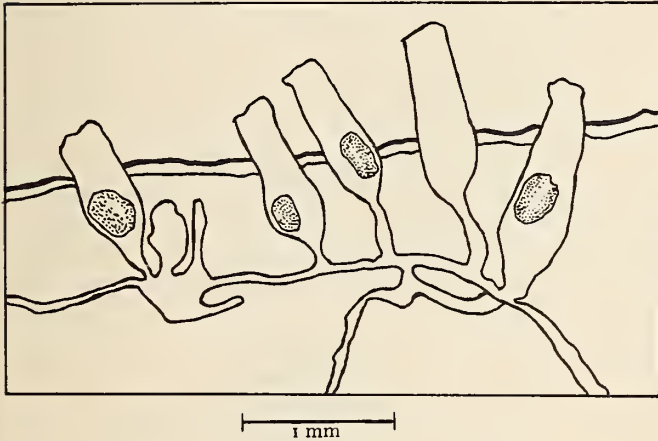


Figure 2

Enlargement of the inset in Figure 1

The zoecia of *Farella elongata*, with the apertures of the five polypides oriented toward the pallial cavity on the left side of the chiton. From a photograph of the live animals $\times 25$

The literature revealed two instances of branchial cavity attachment by organisms living in a way similar to that of *Farella elongata*. OSBURN, 1953, reported that the ectoproct *Triticella elongata* had been found living in the gill chambers of the pinnotherid crab *Scleroplax granulata*. SOULE & SOULE, 1965, reported two species of loxosomatid entoprocts epizoic upon the gill filaments of a mantis shrimp from Southern California.

DALES, 1966, stated that many ectoprocts "may be found as epibionts on other animals, but the associations are not usually specific;" and ADEGOKE, 1967, reported

that two opposing schools of thought had developed, one regarding ectoproct-molluscan associations to be fortuitous, the other maintaining that ectoproct species are very specific in their choice of substrate. A statement on the possible specificity of the present association will have to await more extensive collection and observation.

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